

REMARKS/ARGUMENTS

The claims are 2, 3, 6-15, and 17-30. Claim 1 has been canceled in favor of new claim 30 to better define the invention. Accordingly, claims 2, 3, and 6-14, which previously depended on claim 1, have been amended to depend on new claim 30 and to conform with the language of new claim 30. In addition, claims 15 and 17-29 have been amended to improve their form or to better define the invention and claims 4, 5, and 16 have been canceled. The Abstract of the Disclosure and the specification have also been amended. Support may be found, *inter alia*, in the disclosure at pages 8-11 and the drawings. Reconsideration is expressly requested.

The Abstract of the Disclosure was objected to as failing to conform with U.S. practice, and the specification was objected to as lacking headings and as containing misspellings as set forth on pages 2-3 of the Office Action. In response, Applicant has amended the Abstract and specification to correct these informalities, which it is respectfully submitted overcome the objections of the Examiner to the Abstract of the Disclosure and the specification.

In this connection, regarding paragraph 35 of the published patent application No. 2007/0056944 referred to at page 3 of the Office Action, it should be noted that the specification as filed was correct (see the paragraph bridging pages 5 and 6 of Applicant's disclosure) but the published patent application had omitted a line. Nevertheless, Applicant has "amended" this paragraph herein to reinsert the "missing" line as requested by the Examiner.

Claim 28 was objected to in reciting "a selection or adjustment" which the Examiner suggested should correctly read "a selection for adjustment." In response, Applicant has amended claim 28, *inter alia*, to simplify the language so that claim 28 refers to "an adjustment" element, which it is respectfully submitted obviates the Examiner's objection.

Claim 1 and presumably claims 5, 6, 8-11, 15-18, 21, 22 and 25-27 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for the reasons set forth on pages 4-5 of the Office Action. In response, Applicant, *inter alia*, has canceled claim 1 in favor of new claim 30, has canceled claims 5 and 16, and has amended claims 6, 8-11, 15, 17-18, 21-22, and 25-27 to improve their form. It is respectfully submitted that all

current pending claims fully comply with 35 U.S.C. § 112, second paragraph.

Claim 16 was rejected under 35 U.S.C. 101 as directed to an apparent "hybrid between an apparatus." As stated previously, claim 16 has been canceled, thereby obviating the Examiner's rejection.

Claims 1 and 4-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Artelsmair WO 00/64620* in view of *Hsu et al. U.S. Patent No. 6,717,107*. The remaining claims were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Artelsmair* in view of *Plottier et al. U.S. Patent No. 6,384,376* (claims 2 and 3), or *Jank et al. U.S. Patent No. 6,476,345* (claims 15-29).

Essentially, the Examiner's position was that *Artelsmair* discloses the method for controlling a welding process and the welding device recited in the claims, except for features which were considered taught by the secondary references to *Hsu et al.*, *Plottier et al.*, and *Jank et al.*.

These rejections are respectfully traversed.

As set forth in new claim 30, Applicant's invention provides a method for controlling or adjusting a welding process using a melting electrode in which an electric arc is ignited and a welding process adjusted according to several different welding parameters and controlled by a control device using a welding current source is subsequently carried out. The welding process includes at least a first welding process phase and a second welding process phase. The first welding process phase has a high energy input, and the second welding process phase has a low energy input resulting from at least one of different material transitions and electric arc types. The first and second welding process phases are cyclically combined during the welding process to influence or control the heat input into a workpiece to be worked. The first welding process phase has a high current phase and a base current phase, while the second welding process phase starts during the base current phase.

As set forth in claim 15 as amended, Applicant's invention provides a welding apparatus including a welding current source, a control device, a welding torch and a welding wire. Different welding parameters are adjustable via at least one device selected from the group consisting of an input device provided on the welding apparatus, an output device provided on the welding

apparatus, and a remote controller. An adjustment element for the adjustment of the heat balance or heat input into the workpiece to be worked, via a cyclic combination of at least a first welding process phase and a second welding process phase, is arranged on the at least one device. The first welding process phase has a high energy input, and the second welding process phase has a low energy input. The first welding process phase has a high current phase and a base current phase, and the second welding process phase starts during the base current phase.

The primary reference to *Artelsmair* describes a welding method and welding device where the conveyance of the welding wire is stopped or reversed after the occurrence of a short circuit to maintain the arc and to enhance the welding quality. There is no disclosure or suggestion of the combination of a welding process phase having a high energy input and a welding process phase having a low energy input in order to enable the adjustment and/or control of the heat balance for the introduction of heat into the workpiece.

The defects and deficiencies of the primary reference to *Artelsmair* are nowhere remedied by the secondary references to

Hsu et al., *Plottier et al.*, and *Jank et al.*

Hsu et al. describes a two stage welder and a method of operating the same where two welding processes using different current wave forms are combined. A shifting between the first and the second process occurs after a pre-selected number of wave forms in the first or second process, respectively. There is no disclosure or suggestion in *Hsu et al.* that the first welding process has a high current phase and a base current phase and that the second welding process phase starts during the base current phase as recited in Applicant's claims.

Plottier et al. simply describes a method for pulse arc welding. There is no disclosure of at least two welding process phases with different energy inputs as recited in Applicant's claims.

Jank et al., a patent assigned to Fronius International GmbH, describes a method for controlling a welding apparatus whereby welding parameters can be easily entered or edited to enable a welding process to be configured and performed accordingly. *Jank et al.* simply describes the possibility to amend parameters of a welding process in order to amend the heat

input into a workpiece to be worked, for instance. There is no disclosure or suggestion of the combination of at least two different welding process phases having different energy input or the special switching conditions between those welding process phases.

Thus, neither the primary reference to *Artelsmair*, nor the secondary references to *Hsu et al.* and *Plottier et al.* discloses or suggests a method for controlling or adjusting a welding process wherein the first welding process phase has a high current phase and a base current phase and the second welding process phase starts during the base current phase as recited in new claim 30. Additionally, neither reference discloses or suggests that the first and second welding process phases are cyclically combined during the welding process to influence or control the heat input into a workpiece to be worked as stated in new claim 30.

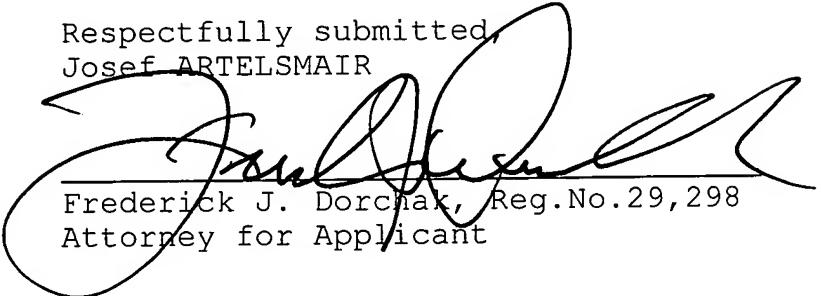
Accordingly, it is respectfully submitted that new claim 30, together with claims 2, 3, and 6-14 which depend directly thereon, are patentable over the prior art.

Similarly, neither the primary reference to Artelsmair nor the secondary reference to Jank et al. discloses or suggests a welding apparatus wherein the first welding process phase has a high current phase and a base current phase and the second welding process phase starts during the base current phase as stated in claim 15 as amended.

Accordingly, it is respectfully submitted that claim 15 as amended, together with 17-29 which depend directly or indirectly thereon, are patentable over the prior art.

In summary, claims 2, 3, 6-15, and 17-29 have been amended, claims 1, 4, 5, and 16 have been canceled, and new claim 30 has been added. The Abstract of the Disclosure and the specification have also been amended. In view of the foregoing, it is respectfully requested that the claims be allowed and that this application be passed to issue.

Respectfully submitted,
Josef ARTELSMAIR

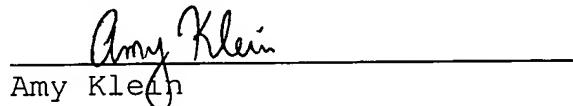


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